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Forest & Shade Tree - Insect & Disease Conditions for Maine
June 15, 2007

The spring season has unfolded with relatively few weather-related problems. Although there is still some evident spruce and balsam fir needlecast damage visible from last year, the activity of leaf and needle disease pathogens on current-season foliage has been very low. In general, tree and forest condition appears quite good, with dense, lush foliage and robust shoot growth. Even though plant growth will continue for many more weeks, many trees (for example American beech) have already started the process of bud-setting, and thus have terminated their shoot extension for the year. Other trees, such as spruces, are still in the shoot-elongation phase. Of course, all tree species will still actively grow in stem diameter until at least into September.

As summer is at our doorstep, watch for symptoms of tree stresses associated with the warmer, drier weather. Drought stress and the well-known wilting and leaf-margin scorching may appear if dry conditions prevail. These same symptoms often appear on trees that were transplanted anytime during the current growing season, even when no symptoms appear on well-established trees.

These warmer months also provide a good opportunity to conduct routine pruning tasks. The likelihood that diseases will be spread is minimized, and with shoot elongation at or nearing completion, a good assessment of crown density and structure can be made. Care should taken to keep bark from tearing at pruning cuts, as the actively growing tissues of the vascular cambium render bark susceptible to damage. For an excellent description of appropriate pruning techniques, refer to the USDA Forest Service publication "How to Prune Trees." This information is also available on the web at www.na.fs.fed.us/spfo/pubs/howtos/ht_prune/prun001.htm.

Hemlock Woolly Adelgid Quarantine – Proposed Rule Changes

The Maine Department of Agriculture and the Maine Forest Service are working together to update the State's Hemlock Woolly Adelgid (HWA) Quarantine. The rule was last amended in 2001. HWA was detected in Maine forests in 2003 and has since been found in the six southernmost towns in York County. To reflect these detections, six Maine towns (Eliot, Kittery, Ogunquit, South Berwick, Wells and York) will be added to the area under quarantine. Additionally, several counties in other states with HWA detections since the original rule-making will be included in the federally quarantined area. To see a list of counties in the eastern United States with HWA detections visit the US Forest Service website: http://www.na.fs.fed.us/fhp/hwa/infestations.shtm, or request a paper copy from Allison Kanoti at (207) 287-3147.

A public hearing is scheduled for July 9, 2007 at 3 pm at the York County Cooperative Extension Office, 21 Bradeen Street in Springvale. If you are unable to attend the public hearing and would like to provide written

comments they will be accepted until 4 pm on July 23, 2007. To access the proposed rule on-line go to http://www.maine.gov/agriculture/pi/ and click on Featured Topics. If you would like a paper copy of the rule, to send comments or you have questions regarding this proposal please contact:

Ann Gibbs
Maine Department of Agriculture
28 State House Station
Augusta ME 04333
Phone: 207-287-3891
Fax: 207-624-5025
Email: ann.gibbs@maine.gov

Insects

Arborvitae leafminer (4 species) – Several samples of arborvitae with browned tips have been submitted in recent weeks. Some of this damage was attributable to arborvitae leafminers, other causes are covered in the "Diseases and Injuries" section of this document. Foliage with recent mines will range from tan to light yellow, or even green. This damage is easily confused with winter injury or damage from fungal pathogens. Mined tips will be hollow and will appear translucent if held up to a strong light. In the Augusta area, most leafminers are in the pupal stage this time of the year. Adults should peak around the last week of June or the first week in July. To check for the presence of adults, gently shake the foliage to force flight.

On lightly infested trees, this pest can be controlled by clipping and burning mine- containing leaves in fall or very early spring. In heavier infestations, treatment to control the moth stage is fairly effective and will prevent egg-laying. Repeated treatments may be necessary to control the adults as their flights may extend over several weeks. Another option is to wait until new mines appear in early August and treat at that time. Chlorpyrifos (Chlorpyrifos), Bifenthrin (Talstar) and Permethrin (Permethrin) are some of the contact insecticides registered for control of leafminers. These contact insecticides can be used on both adults and larvae. Control of larvae in mines using a contact insecticide is best achieved with an emulsifiable concentrate, however wettable powder sprays will provide adequate control and are less toxic for applications around home grounds. Acephate (Orthene) and Imidacloprid (Merit 75 WP) systemic insecticides are also registered for larval control within the mines.

Aspen Problems - Quaking aspen in central Maine have been hit by a complex of leafrollers and their friends. Samples checked had at least three different species of leafroller, a leaf tier, aphids, scale insects and aspen treehoppers. Foliage is chewed, rolled, tied and twisted while branches have slits cut in them by the treehoppers and scales stuck all over them. Lacewing larvae were actively feeding on the aphids though. All the leafrollers and tiers have already abandoned the leaves so species determination is difficult. Stands of aspen are noticeably thin from the air.

Balsam Gall Midge** (Paradiplosis tumifex***) - Check Christmas tree plantings now for signs of galls, the population appears to still be low but there may be areas where they will be a problem this year. Treat with Diazinon or chlorpyrifos (Lorsban) after the new growth flares.

***Birch Leafminers (*Messa nana and Fenusa pusilla*)** - Trees in central Maine have relatively few leafminers on them but some locations in the northern part of the state have heavier populations. The larvae are now actively mining the leaves. Soil systemics for these miners should already have been applied. Foliar treatments to preserve aesthetic quality of birch should be made as soon as the tiny mines appear although it is getting late to protect trees in the southern half of the state. Acephate (Orthene) and carbaryl (Sevin) are registered for this purpose. Don't confuse developing blotch mines of the leafminers with translucent spot mines of the casebearer. Control for casebearer should have been applied in May.

***Browntail Moth (*Euproctis chrysorrhoea*)** - The browntail moth population is very spotty and restricted to the greater Brunswick area this year. Caterpillars are now entering the fifth instar and are at the stage where the danger to people of developing dermatitis and respiratory problems from contact with toxic hairs has increased significantly in infested areas. Spraying at this time will not prevent problems allergic reactions as dead caterpillars have hairs too and those hairs will still be around.

***Fall Cankerworm (*Alsophila pometaria*) -** These inchworms are finishing up their feeding and spinning down to the ground on silken threads where they will stay until late fall. Populations are high in patches in the very southern most tip of the State. They are feeding primarily on oak but once those trees have been defoliated they move onto other hardwood species and herbaceous plants on the forest floor. This is the second year of high numbers in this area - and also in neighboring southern New Hampshire. We can expect another year of defoliation before parasites and predator numbers will hopefully get high enough to drop the population down to a more normal level. Long time residents do not remember seeing an outbreak like this in this area of the State. The last time fall cankerworm was a problem in Maine was during the mid 1990's on boxelder in eastern Aroostook County.

***Fall Webworm (*Hyphantria cunea*) -** Remember the infestation of fall webworm last year? It was spectacular with some trees festooned top to bottom with filmy webs, caterpillars and no leaves. Well, the small white fall webworm moths have been abundant in many areas in recent days. In coming weeks, look for loose tents containing tiny, grayish, fuzzy caterpillars on alder, apple, ash, beech, birch, cherry, elm and oak. Clip and destroy these small developing tents to help reduce the problem locally. Carbaryl (Sevin), Diazinon, acephate (Orthene) and Bt are registered for use against this pest.

***Forest Tent Caterpillar (*Malcasoma disstria*) -** Mature larvae with white "keyhole" markings and blue stripes are congregating on tree trunks before moving off to spin cocoons. Mike Skinner up in Crystal wants to know what they are doing in his yard - "I see the caterpillars but can't find what they have been eating, maybe they packed in their lunches" he says. Vermont, New York and Pennsylvania have been having severe outbreaks of the forest tent, hopefully we will not see that level of defoliation in upcoming years in Maine.

***Gypsy Moth (*Lymantria dispar*)** - Populations of gypsy moth remain low. What larvae are present are moving into the home stretch of the feeding stage. Grayln Smith is keeping an eye on a small population on Indian Hill in Greenville, a newly infested town. Acephate (Orthene), Bt and carbaryl (Sevin) are among the pesticides registered for use in controlling gypsy moth.

Hemlock Woolly Adelgid (*Adelges tsugae) – A new detection of infested out-planted nursery stock was reported from southern Hancock County this month. FH&M staff have conducted initial delimitation work and, at this time, it appears that the infestation is confined to the out-planted stock. Eradication procedures are being

initiated. This incident serves as a reminder that homeowners should check their planted and native hemlocks for the presence of this insect. The mobile stage of hemlock woolly adelgid, the crawler, is active this time of year and is easily transported. Take precautions, such as washing equipment and clothing, when moving from working around infested hemlocks to working around uninfested hemlocks. Crawlers will settle by early August. *Please report any suspected findings of hemlock woolly adelgid to the Insect and Disease Lab.*

Locust Leafminer (***Odontota dorsalis***) - The small ¼ inch long flat, red and gray black striped locust leaf miner adult beetles are now wandering over and feeding on emerging foliage. The population was lower in 2006 then it has been in years, finally giving the trees a break, and at this point it looks like the population is still low. Many locust trees have succumbed to the beetle attacks or have severe dieback despite predictions that this beetle would have little long term effect on tree health. Right now the trees that have survived in central Maine are blooming and look and smell beautiful.

***Mountain Ash Sawfly (*Pristiphora geniculata*)** - Adults are now out in southern Maine and should be laying eggs along the margin of leaflets causing bladder-like swellings. Larvae will become evident in a week to ten days and defoliation occurs rapidly. In small trees control can be achieved by prompt removal and destruction of infested leaves. Otherwise you may wish to treat infested trees with carbaryl (Sevin), spinosad (Success), or acephate (Orthene) when larvae are present.

***Spruce Galls (Adelges abietis and others)** - Galls are starting to form on the new foliage of spruce trees. Now is the time to prune and destroy the galls to reduce the population and preserve the aesthetic appearance of the trees. It may be better to replace trees that are heavily infested by galls year after year.

***Pine Leaf Adelgid (*Pineus pinifoliae*)** - Dead shoots on pine from pine leaf adelgid damage are particularly noticeable this year especially in northern Maine. The adelgids have a complex life cycle that takes two years to complete with two hosts, white pine and spruce - both red and black . The adelgids form galls on the tips of spruce branches that resemble cones during the first year. In the second year of the life cycle the adelgids feed on pine branches. Young pine can be killed by heavy infestations while older trees may have branch dieback.

***White Pine Weevil (*Pissodes strobi*)** - Infested terminal shoots on pine and spruce will begin wilting by the end of the month. Early detection and corrective pruning can minimize the long term impact of this pest. Wilting terminals should be cut off and destroyed - do not just leave them on the ground, the larvae will survive perfectly well lying on the ground.

Diseases and Injuries

Balsam Fir Problems: A fair number of calls have been received over the past month regarding balsam fir problems. Some fir mortality is still occurring in isolated Christmas tree plantations, primarily in mid- and south coastal areas. This damage is attributed to abnormally wet soil conditions of the previous two growing seasons, and is not expected to continue after this year. Needlecast diseases, also still evident from previous wet years, are still causing concern in ornamental and Christmas tree plantings. In addition to the commonly occurring *Lirula* and *Isthmiella* needlecast fungi, a less common pathogen, *Rhizosphaera pini*, was recently identified from balsam fir in Porter, Maine. No registered fungicides are available for control of these pathogens. Chemical controls are usually not warranted, and several of these needlecasts have two- and three-

year life cycles, making fungicide timing and control difficult. As with the damage from saturated soils, the fir needlecast diseases are expected to diminish if our weather conditions remain near normal this season.

Dutch Elm Disease (caused by *Ophiostoma ulmi* and *Ophiostoma novo-ulmi*) - The next few weeks will provide an opportunity for astute arborists to attempt to prune incipient Dutch elm disease infections from high value landscape trees. With the onset of hot, dry weather over the next few weeks, Dutch elm disease symptoms will become evident in infected trees as tree branches flag and wilt, the result infection by the Dutch elm disease fungus.

Incipient infections, apparent as limited areas of wilting at branch tips, may often be successfully pruned from trees if caught sufficiently early. Immediately prune out these flagging branches, and peel back the bark from excised branches to look for the stained or streaked sapwood which is a telltale sign of infection. Prune back the branches until only clean sapwood is located for a distance of 5-10 feet, taking care to sterilize pruning tools between cuts. Make the final cut at a branch junction to avoid leaving a branch stub. This procedure will not work on trees where the disease is well established throughout the tree, but is worth a try in early stages of infection.

Hardwood Anthracnose: It appears that significantly damaging levels of hardwood anthracnose diseases have not developed this year. Only one report of sugar maple anthracnose (from Ellsworth), and two reports of oak anthracnose (from Boothbay and Cape Elizabeth) have been diagnosed. While some very localized infections occur almost every year, the overall level of these leaf diseases is very low. This of course is good news, and should allow some much-needed recovery for trees heavily affected over the past two years.

Pitch Pine Needle Rust (*Coleosporium asterum (= solidaginis*) - This disease was recently identified from pitch pine in the Hiram area, and likely occurs throughout the range of pitch pine in Maine. It may also occur on red and jack pine. Rust-colored needles typical of many similar needle rusts on two- and three-needled pines become evident by mid- to late May. The disease is started by spores formed on goldenrod or aster. In spring, small white tubes which discharge orange spores appear on the needles. These spores infect the alternate hosts, chiefly aster and goldenrod, where the fungus can maintain itself (re-infecting the host plant) indefinitely. This pathogen usually is of little importance on older trees but can damage younger trees. Only needles are infected; branch and stem cankers do not occur, as with some other rusts (see White Pine Blister Rust, below). There are no controls, except reducing the amount of goldenrod or aster in the area.

It should also be noted that another needle disease, this one attributed to *Lophodermium pinastri,* is the primary cause of the heavy needle browning and needle loss on pitch pine throughout the Saco River drainage. It is still too early in the season to assess infection levels for *Lophodermium* needle cast for this year, but surveillance is underway.

Twig Dieback of Juniper and Arborvitae: We have received several calls and samples over the past two weeks concerning branch tip dieback symptoms on both eastern red-cedar (and other species of *Juniperus*), and on northern white-cedar (*Thuja occidentalis*). In some instances, the problem has been found to be the result of an Arborvitae leaf miner infestation (covered in the Insect section of this newsletter). In other cases, several fungi have been the primary cause. Branch tip infection by the foliar pathogens *Phomopsis* and *Kabatina* can result in dieback of the terminal four to six inches of branch tips.

White Pine Blister Rust (*Cronartium ribicola)* - This is a disease of historical significance throughout the Northeast. The disease is especially damaging in pine regeneration, on seedlings to pole-sized trees. Infection levels are often higher in foliage close to the ground, where microclimatic conditions favor spore germination and development. Because they are smaller, these younger trees are also quickly killed. Although this disease usually passes unnoticed until the second or third year after infection, the fungus enters young needles in the fall and grows down the needle into the branch and wood. Small dead branches and branch flagging, with browned needles still attached, are an important initial symptom to watch for. The infected branch or stem wood swells and has a yellow or orange tinge. The part of the tree beyond the canker dies if the canker extends around the trunk.

In early spring, drops of clear orange liquid appear on infected areas which attract insects; these pycnia later fall out leaving tiny dark scars. The following year white blisters push through the bark in April and May. These discharge orange-yellow aeciospores that are carried by wind to infect currant, gooseberry, and wild *Ribes* leaves. The spores that will infect the pine needles are produced on the *Ribes* leaves in mid-to late summer. Therefore, now (May, June, and early July) is the time to apply herbicides to control *Ribes* to reduce the probability of pines becoming infected. Control has been successful where all *Ribes* within 900 feet of white pines have been removed. The European black currant and gooseberry are more susceptible than the ordinary red currant. Control by pruning of infected braches can also be effective, if the branches are removed before the fungus reaches the main stem.

The quarantine law prohibiting the planting of any species of *Ribes* in the regulated area in Maine, and European black currant anywhere in the state remains in effect. Check the Maine Forest Service Forest Health and Monitoring website for the exact location of the quarantine (regulated) area, and for information on other pest restrictions.

Information on any entry preceded by an (*) may be available on our website or can be requested by calling or writing to the Insect and Disease Laboratory, 48 Hospital Street, Augusta, Maine 04330-6514, Phone (207) 287-2431, Fax (207) 287-2432.

NOTES: Recommendations are not a substitute for pesticide labeling. Read the label before applying any pesticide. Pesticide recommendations are contingent on continued EPA and Maine Board of Pesticides Control registration and are subject to change. Other effective registered fungicides are available and marketed under other product names. No endorsement nor the exclusion of similar products not mentioned by the Maine Forest Service is intended or implied. Ask your supplier for specifics, and always read the label of any product before applying on site.

03/07 Forest Health & Monitoring Division Augusta, Maine